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PHOTOGRAPHIC INTERPRETATION REPORT

CHRONOLOGY OF THE ROCKET ENGINE TEST FACILITY PRIMORSK, USSR

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CHRONOLOGY OF THE ROCKET ENGINE TEST FACILITY, PRIMORSK, USSR

SUMMARY/CONCLUSIONS

The Rocket Engine Test Facility, Primorsk, USSR (PRETF) apparently has been involved in a relatively sensitive program of small-scale missile-associated testing since, and possibly before, July 1963. Construction on and around a probable test stand suggests that new or larger testing programs will take place in the near future. The exact relationship of PRETF to the overall Soviet missile program has not yet been determined.

INTRODUCTION

The purpose of this report is to provide a chronology of the development of the Rocket Engine Test Facility, Primorsk, USSR [redacted] The facility is located at 60-18-32N 028-51-35E, approximately 10 nautical miles (by rail) southeast of the city of Primorsk. The facility, which is approximately 125 acres in area, is situated on a narrow strip of land between Ozero (lake) Vysokinskoye and the Gulf of Finland at an elevation of approximately 20 feet above sea level (Figure 1).

July 1956 TALENT photography, which was the first coverage of the site of PRETF, revealed that construction had not begun. The next photography of the area was on KEYHOLE coverage of December 1961, the interpretability of which was sufficient only to reveal the general shape of the facility. Not until KEYHOLE coverage of August 1962 was interpretability sufficiently good to allow confirmation of the existence of individual structures; confirmation of the existence of small structures was not possible until July 1963. Selected subsequent missions have allowed a limited identification of structures; however, in most cases, the identification of details which could possibly define functions was limited by small scale and haze. Those details which could be interpreted are given in this text and in Table 1 and Figure 2. All item numbers are keyed to Table 1 and Figure 2. A photographic view of PRETF, the most recent to date, is provided in Figure 3.

The primary road now serving PRETF on its west side and a building and a pier, which no longer exist, were the only features observed on TALENT photography of 1956. A rail spur branching southeast from the Primorsk/Roshino railline was constructed during the period from July 1956 to December 1961 to support PRETF. A powerline evidently connecting the substation (item 10) with an outside power source was also constructed during this period (Figure 2). All testing activity is evidently conducted on the shore of Ozero Vysokinskoye while the Gulf of Finland is apparently only used for waste disposal. The relatively greater protection from observation afforded by locating the facility adjacent to Ozero Vysokinskoye rather than the international waters of the Gulf of Finland was probably considered when construction sites for testing were chosen.

Security seems to be an important consideration since the facility is surrounded by various combinations of fence, wall, and security-patrol road (Figure 2). The perimeter security varies between a minimum of 2 fences and a maximum of 2 fences, a wall, and a security-patrol road. A total of 17 guard tower positions are situated on the security perimeter as well as probable floodlights on numerous poles which are evenly spaced inside the security-patrol road. Each of the 3 gates of the facility apparently has provisions for carefully controlling access. Most or all of the perimeter security arrangements probably existed in December 1961 when the outline of the facility was imaged on KEYHOLE photography, although their existence could not be confirmed until December 1966. In addition to the perimeter security, a pier (item 81) may be used to dock small patrol craft. The only unsecured portions of the facility are a water treatment plant and clarification basins (item 63 and 64), 2 possible well sites (items 34 and 62), unidentified construction (item 98), and 3 small buildings (items 2-4). 25X1

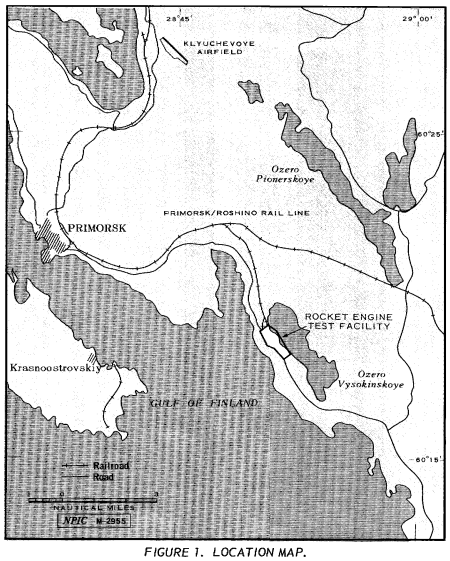

FIGURE 1. LOCATION MAP.

PRETF can be subdivided by function into 5 areas (Figure 2): Area A, a support area; Area B, a probable water treatment area; Area C, a possible small rocket engine/components/fuel-testing area; Area D, a probable full-scale testing area; and Area E, a possible full-scale testing area.

PRETF appears to be involved in a relatively sensitive testing program which is perhaps evolving from small rocket testing, component testing, or subscale testing into a capability to test larger rocket engines. The facility may also be involved with rocket fuel testing as suggested by the frequency of railroad fuel car activity, the large number of tanks, and the relatively large number of pipes linking various structures.

On photography of July 1963, when small structures at the facility could be confirmed for the first time, the roof cover [redacted] Roof cover added during the time periods corresponding to the color coding of Figure 2 is as follows: [redacted] 25X1

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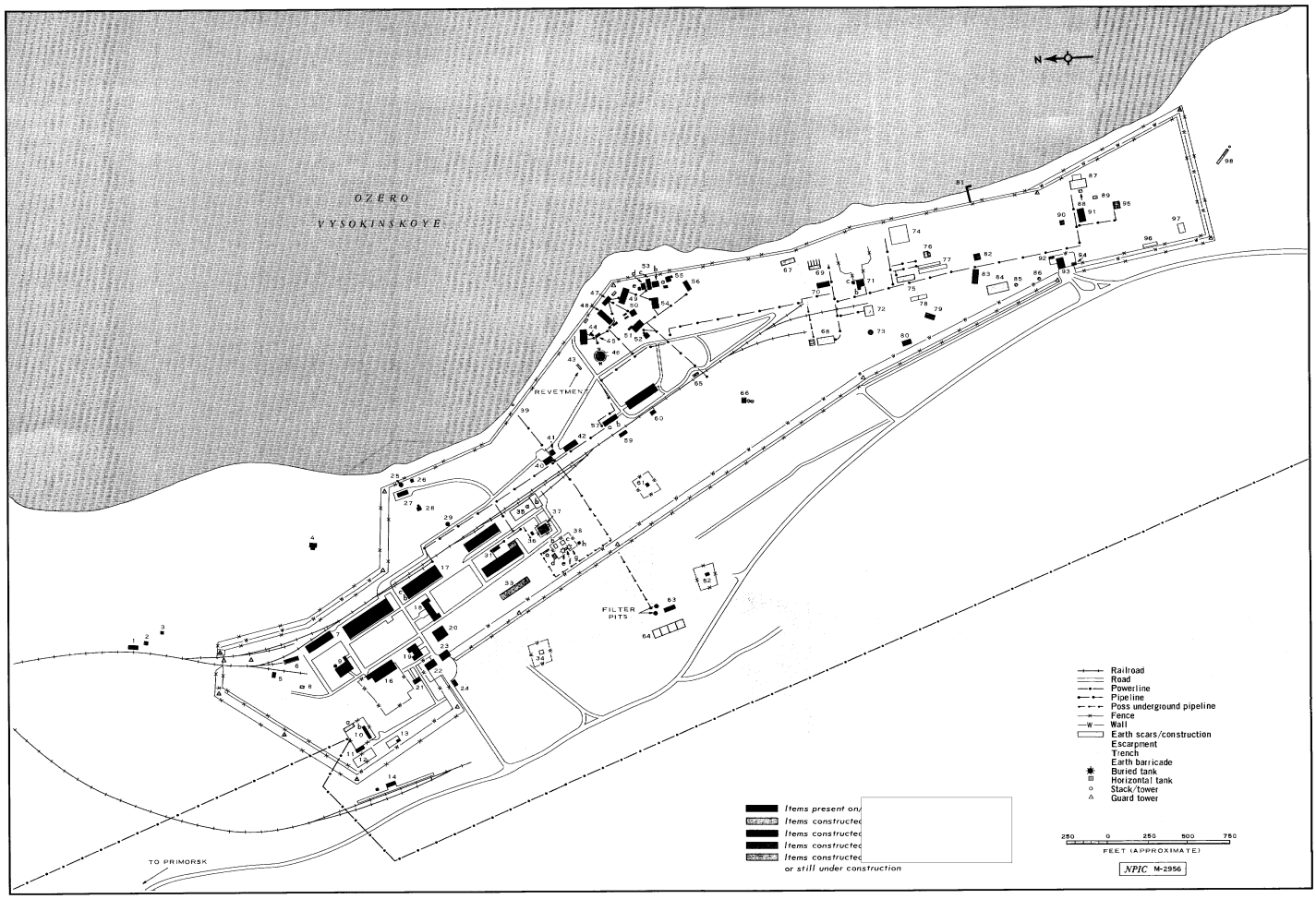

FIGURE 2. LAYOUT OF THE ROCKET ENGINE TEST FACILITY.

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Table 1. Details of the Rocket Engine Test Facility, Primorsk, USSR (item numbers keyed to Figure 2)

Item No	Function/Description	First Observed*	Explanatory Notes
1	Storage shed/open storage	Mar 65	
2	Prob guard checkpoint**	Jul 63	
3	Support bldg**	Jul 63	
4	Poss living quarters	Jul 63	
5	Support bldg	Jul 63	
6	Receiving/shipping bldg	Jul 63	Rail spur enters bldg
7	Storage/support bldg	Jul 63	Rail served on east side
8	Support bldg**	Dec 66	
9	Steamplant	Jul 63	1 or 2 poss buried fuel oil tanks located in gully west of item 5; stack [redacted] at NE corner
10	Substation		
A	Maintenance/support bldg	Sep 63	
B	Prob control bldg	Mar 65	
11	Support bldg**	Mar 65	
12	Open storage area	May 65	Fence enclosed storage area measures 130 x 60 ft; numerous pieces of equipment/crates evident on photography [redacted]
13	Prob storage shed	Apr 66	
14	Rail receiving/shipping bldg	Mar 65	Small support shed immediately north; 515-ft prob paved loading surface and 60-ft loading dock on west side of bldg
15	Poss lab/engineering bldg	Aug 62	[redacted] bay on south end
16	Maintenance bldg	Jul 63	[redacted] low bay on north end
17	Poss fuel handling bldg	Aug 62	RR fuel cars frequently noted on spur serving east side of bldg; 3 poss loading docks on SE side of bldg
a	Main section		
b	NW bay		
c	NE low bay		
18	Admin/lab/engineering bldg	Jul 63	20 x 10-ft wings
19	Prob admin bldg	Jul 63	[redacted] wings
20	Admin bldg	Jul 63	Small mast adjacent/attached to south side of bldg
21	Maintenance/support bldg	Jul 63	
22	Security/admin bldg	Jul 63	
23	Security/admin bldg	Jul 63	
24	Poss bus stop**	Jul 63	
25	Tank	Mar 65	
26	Support bldg	Jul 63	
27	Prob maintenance bldg	Jul 63	High bay on NE corner measures [redacted]
28	Support bldg	Jul 63	[redacted] bay on east side
29	Standpipe	Jul 63	
30	Poss storage bldg	Aug 62	Rail served on east side
31	Tanks**	Jul 63	Prob present in Jul 63; 12 prob vertical pressure bottles arranged in 2 parallel rows of 6 each
32	Poss test bldg	Aug 62	East bays measuring [redacted] ft and [redacted] ft added between Aug 65 and Feb 66
33	Storage/support bldg	Mar 65	Bldg apparently begun in Mar 65 and completed by Jul 65; poss loading docks on east side of bldg; bay on south end measures [redacted]
34	Separately secured poss well site	Jun 64	
35	Poss fuel handling bldg	Jun 64	Rail served on east side; additional rail spur enters bldg on south end; numerous vents on roof
a	Main section		
b	South high bay		
36	Poss tanks	Oct 64	Poss 2 tanks
37	Support bldg	Oct 64	
38	Poss fuel/water storage compound	--	
a	Poss storage shed	Oct 65	
b	Support bldg	Sep 63	
c	Support bldg	Sep 63	
d	Horizontal tanks (4)	Oct 65	
e	Buried tank	Sep 63	
f	Prob pumphouse**	Sep 63	
g	Buried tank	Sep 63	
h	Support shed	Apr 66	
39	Poss water intake point	Jun 65	The pipeline was apparently in place by Jun 65; it emerges from the ground at a point just inside perimeter fence and extends (elevated) west across facility to a point aprx 75 ft from west perimeter fence; ground scarring suggests that the pipeline extends underground from this point to water/waste treatment plant (item 63)
40	Prob maintenance bldg	Jul 63	
41	Prob pumphouse	Mar 65	
42	Prob maintenance/checkout bldg	Jul 63	Divided into 2 apparently equal-sized bays (higher bay on west side); each bay has a large drive-in door on north end
43	Horizontal tank**	Aug 67	Surrounded by earth barricade
44	Support bldg	Jul 63	Horizontal tank [redacted] located east of bldg beside security fence
45	Support bldg	Jul 63	
46	Buried tank	Jun 65	Surrounded [redacted] barricade/wall
47	Poss horizontal test bldg	Jul 63	
48	Poss components test bldg	Jul 63	West end appears wider than 30 ft, but poor interpretability of this section on all photography precludes measurement
49	Support bldg	Jul 63	High bays measure [redacted] on SE and SW corners
50	Horizontal tanks (5)	Jul 63	
51	Support bldg	Jul 63	6 horizontal tanks adjacent to north corner of bldg; tank closest to bldg 35 ft long; remaining tanks appear smaller
52	Poss burn/vent stack with u/i service structure**	Jul 63	
53	Horizontal tanks	Jul 63	[redacted] photography suggests that all 13 tanks were present at that time
a	2 tanks**		
b	3 tanks		
c	4 tanks**		
d	2 tanks		
e	2 tanks**		
54	Support bldg	Jul 63	
55	Poss burn/vent stack with u/i service structure	Jul 63	
56	Support bldg	Jul 63	
57	Poss machine shop bldg	--	
a	high bay	Jul 63	
b	low bay		
58	Poss checkout bldg	Jul 63	Apparently a drive-through bldg
59	Support bldg	Jul 63	Rail served on east side
60	Support bldg	Jul 63	Rail served on east side
61	Separately secured poss well site	Oct 64	
62	Separately secured poss well site	Oct 64	
63	Prob water treatment bldg	Jul 63	2 filter pits (25-ft diameter) north of bldg
64	Clarification basins	Sep 63	Divided into 4 basins; associated with item 63
65	Prob propellant transfer point	Feb 66	Contains 2 poss pressure tanks and an u/i adjacent structure; rail served
66	Support bldg	Jul 63	140-ft stack/tower adjacent to south side of bldg; 140 ft u/i tower just south of stack/tower
67	Checkout/support bldg**	Jun 64	
68	Prob fuel handling/storage bldg	Jun 64	3 horizontal tanks [redacted] parallel on a prob concrete apron at north end of bldg
69	U/I construction activity	Aug 67	
70	Poss control bldg	Jul 63	
71	Prob test stand	Jul 63	Height of section "a" measured on west side, no measurement of distance between top of super structure and base of flame bucket; measurement of prob tank based on rough approximation (see Figure 4)
a	Main section		
b	West low bay		
c	Prob tank**		
72	Poss fuel handling bldg	Jun 64	Rail served on east side
73	Poss standpipe	Oct 64	Poss still u/c
74	Poss pressure gas bottle farm u/c	Aug 67	U/C on what is apparently a concrete apron measuring [redacted]
75	Poss tank shelter	Aug 67	Structure apparently open sided
76	Support bldg	Apr 66	High bay on SW corner [redacted]
77	U/I construction activity	Aug 67	Area of construction contains 6,480 sq ft
78	U/I construction activity	Aug 67	Area of construction contains 1,900 sq ft
79	Prob storage bldg	Mar 65	
80	Support bldg	Jul 63	
81	Pier**	Jul 63	L-shaped; u/i prob small craft (s) apparently tied up at end of pier on 20 Aug 67 photography
82	Support bldg	Mar 65	
83	Support bldg	Mar 65	
84	Prob storage bldg	Jun 64	
85	Poss small hydrostatic test tower**	Jul 65	Towers may have been present prior to Jul 65; however, scale and resolution of prior photography precludes confirmation
86	U/I tower	Jul 65	
87	Poss test position**	Mar 65	Gable-roofed, apparently open-sided structure; structure apparently begun in Mar 65 and is prob not yet complete; apron on east side of structure measuring 45 x 25 ft added between Dec 66 and Jun 67; 5 elliptical earth barricades (1 apparently holds a horizontal tank) being installed west of poss test position in Aug 67
88	Poss pumphouse/support bldg**	Aug 67	
89	Support bldg	Jun 67	
90	Support bldg	Mar 65	
91	Support bldg	Mar 65	
92	Support bldg**	Mar 65	
93	Security bldg	Jul 63	
94	Support bldg	Jul 63	
95	Support bldg	Apr 66	
96	U/I construction	Jun 67	
97	U/I construction	Jun 67	
98	U/I construction	Jun 67	

*Construction completion dates are not given because of time gaps and interpretability limitations of the photographic coverage; structures may be assumed to be complete on the date given unless otherwise stated in the Explanatory Notes; photography [redacted] the best of the early coverage, has been used as the chronological base, although 4 bldgs could be confirmed present on Aug 62 coverage and other structures were probably also present.

**Measurements of this structure made by photo interpreter. All other measurements are made by NPIC/TID; dimensions are accurate within ± 5 ft or 5%, whichever is greater.

***Greatest overall dimension of an irregularly shaped bldg.

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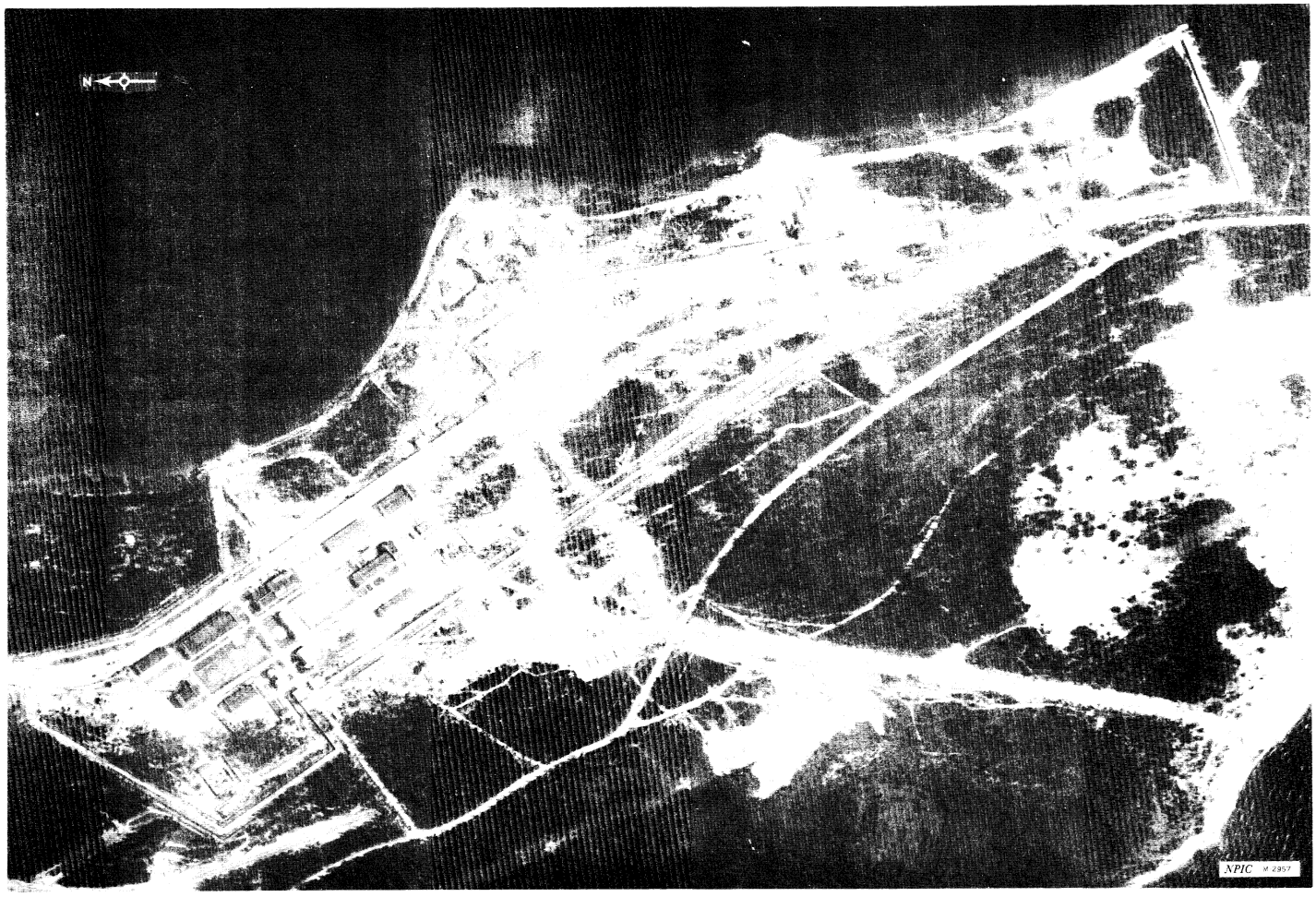

FIGURE 3. ROCKET ENGINE TEST FACILITY, PRIMORSK, USSR, AUGUST 1967.

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HIGHLIGHTS OF CHRONOLOGY

JULY 1956 - JULY 1963

Construction of the facility began prior to December 1961. Many or all of the structures confirmed on July 1963 photography may have been present in December 1961 when the perimeter outline of the facility could be discerned. July 1962 photography confirmed the construction of 4 buildings in Area A (items 15, 17, 30 and 32). July 1963 photography permitted the confirmation of construction of many structures in Area A and virtually all structures in Area C. It is probable that both of these areas were operational by the end of 1963. The probable test stand (item 71 and Figure 4) was begun during this period. The substation (item 10) was probably constructed during this period, since a powerline trace entering and leaving the area where the substation is located can be seen on December 1961 photography. The rail spur at the northwest end of the facility apparently was constructed some time between December 1961 and April 1963.

JULY 1963 - JUNE 1964

Earth grading began in Area E between the middle of July and September 1963 in preparation for future construction of items 87, 90, 91, and 95. Clarification basins (item 64) had been added to the water treatment building (item 63) and the basic structures in the possible fuel/water storage facility (item 38) were also added by then. Four large service buildings (items 67, 68, 72, and 84) were completed in Area D by June 1964. A possible fuel handling building (Item 35) was begun during this period and observed complete on June 1964 photography.

JUNE 1964 - JUNE 1965

One support building (item 37) in Area A was constructed by October 1964, and Area B had 2 probable well sites (items 61 and 62) added to it. Three more support buildings (items 79, 82, and 83) were constructed in Area D and 2 in Area E (items 90 and 91). Construction began in March 1965 on a storage/support building (item 33).

JUNE 1965 - JUNE 1966

The storage/support building (item 33) begun in March 1965 was completed by July 1965 and 2 small bays were added to a possible test building (item 32) by February 1966. Two support structures (items 76 and 95) were constructed in areas D and E respectively.

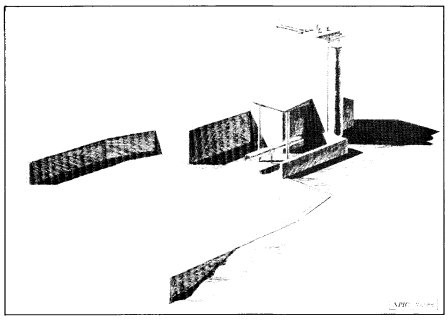

FIGURE 4. ARTIST'S CONCEPTION OF THE PROBABLE TEST STAND (item 71, Figure 2) VIEWED FROM THE NORTHEAST.

JUNE 1966 - AUGUST 1967

Construction activity was limited to Areas D and E during this period and much of this construction was incomplete by August 1967. A possible test position (item 87) which was begun in March 1965 was apparently still not operational. Construction of support facilities around the probable test stand (item 71) was still underway in August 1967.

DESCRIPTIONS AND FUNCTIONS OF AREAS

AREA A (SUPPORT AREA)

The primary buildings in Area A are served by rail spurs and/or surfaced roads. Many of these buildings (item 6, 7, 17, 30, and 35) are most likely involved with fuels handling, storage, and distribution to Areas C, D, and E. Area A may also have facilities for lab testing fuels. Tank cars have often been noted on the rail spurs serving these buildings. The overhead pipe gallery system of the facility connects Area A to Areas C, D, and E.

The rail spur at the northwest end of PRETF may be used as a parking spur for waiting rail cars or may be, in time, extended to serve possibly planned future construction in the vicinity of Area B.

AREA B (PROBABLE WATER TREATMENT AREA)

Area B draws from 2 apparent fresh water sources, from possible wells (items 34, 61, and 62), and from the possible water intake point (item 39). In addition, the area includes a possible water treatment building (item 63), clarification basins (item 64), 2 filter pits, and a possible fuel/water storage facility (item 38).

AREA C (PROBABLE SMALL ROCKET ENGINE/COMPONENTS/FUEL-TESTING AREA)

Area C probably functions as a small rocket engine test area/components-testing/fuel-testing area. However, lack of suitable coverage precludes a more definite identification. Most of the structures in Area C have been constructed on a level area carved out of a hillside. Four structures (items 46, 51, 52, and 54) are therefore situated at a level 15 to 20 feet above the other structures. Horizontal testing positions may be located in 2 buildings in the center of the area (items 47 and 48), with support being provided by surrounding buildings (items 44, 45, 49, 51, 54, and 56). Items 52 and 55 may be burn or vent stacks.

Tanks are dispersed throughout the area and are linked to various buildings by pipelines. Area C is linked to the primary overhead pipe gallery from Area A. In addition, Area C is apparently supplied with fuel from a probable propellant transfer point (item 65) on the main rail spur. A fuel truck measuring 30 feet in length was noted adjacent to the north end of item 52 on photography of August 1967. Items 40, 42, 57, and 58 probably function as checkout and maintenance buildings in support of Area C.

AREA D (PROBABLE FULL-SCALE TESTING AREA)

Area D appears to be still under construction on the latest photography, and, therefore, is probably not functional. Continuing construction is suggested by the unsurfaced roads, apparent construction materials, earth scars, and rail spurs which have not been fully extended into the area. The probable test stand (item 71 and Figure 4) is

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the primary structure in this area. Most of the other buildings appear to be supporting it.

The scale and direction of view of available photography impedes any detailed description of the probable test stand; however, there is probably a tank on the northeast side connected to the superstructure of the probable test stand by a wall. The superstructure apparently has a large door and a low bay section on its west side. An unidentified object, perhaps an I-beam, is also attached to the superstructure on the west side approximately 10 feet below the roof. This could be used to support a traveling block and tackle. Four vents and 2 parallel probable pipes are mounted on the roof of the superstructure. The pipes could be used to supply fuel and oxidizer to tanks which could be located in the superstructure (Figure 4). The configuration of the front of the stand can only be approximated because of shadow and haze, however, photography of August 1967 reveals what may possibly be a diffuser protruding from the base of the stand under a probable open-sided shelter. The August 1967 photography suggests that the probable test stand is in the latter stages of construction; the cleared area on the east side of the probable test stand is probably still to be surfaced. The functions of 2 towers of similar size and shape, one of which is item 86 and the other is located south of a support building (item 66), cannot be identified. The towers are both approximately 140 feet high and apparently have spheres approximately 12 feet in diameter mounted at their tops. In addition, a possible small hydrostatic test tower (item 85) is located in Area D and may eventually be rail served. The primary buildings in Area D have been linked by pipe gallery to Area A.

AREA E (POSSIBLE FULL-SCALE TESTING AREA)

The 17 acres of Area E, which were surrounded by security fences and added to PRETF between March and May 1965, constitute the newest area of the facility. Between June and December 1966, the security wall at the south end of Area D, which separated that area from Area E, was removed. Construction activity in this area was continuing when observed on August 1967 photography. The location of the possible test position (item 87) suggests that it could be a test position, however, photography does not provide any concrete clues to the function of this structure or any other structure in the area. The area is linked by a pipe gallery to Area D, but still appears to have a separate function from that of Area D.

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REFERENCES

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MAPS OR CHARTS

ACIC. US Air Target Chart, Series 200, Sheet 0103-24

REQUIREMENT

CIA. C-DI5-82,973

NPIC PROJECT

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